PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:

ADRIAN LUNGU

CASE NO.: IM1303 US NA

APPLICATION NO.: 09/839,803

GROUP ART UNIT: 1752

FILED: APRIL 20, 2001

EXAMINER: JOHN S. CHU

FOR: A PHOTOPOLYMERIZABLE ELEMENT FOR USE AS A FLEXOGRAPHIC PRINTING PLATE AND A PROCESS FOR PREPARING THE PLATE FROM THE ELEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Declaration Pursuant to 37 CFR §1.132

I, Adrian Lungu, am a citizen of Romania, residing at 623 Marlboro Road, Old Bridge, NewJersey, United States of America, and I declare as follows:

1. I am the inventor named in this application. I received a Bachelor of Science degree in Chemical Engineering from Iasi Polytechnic Institute in Iasi, Romania, a Master of Science degree in Macromolecular Science from the Iasi Polytechnic Institute in Iasi, Romania, and a Ph.D. in Photochemical Sciences from the Bowling Green State University in Bowling Green, OH. I have been employed by E. I. du Pont de Nemours and Company since August 1997 and currently hold the position of Senior Research Chemist which I attained in August 1999. A listing of my publications and patent are set forth in Attachment 1.

2. I have reviewed the Office Action dated December 19, 2002 and U.S. Patent No. 6,479,217 B1 (hereinafter the '217 patent). I am aware that this declaration is being submitted to show that certain claim language in the '217 patent corresponds to the same invention as that disclosed in the Examples of the above-identified application of which I am the inventor.

Declaration Concerning the '217 Patent

3. Examples 1 and 2 of the present specification describe the same patentable invention as that described in U.S. Patent 6,479,217. The present Examples describe preparing a photosensitive mixture of a diacrylic monomer, a photoinitiator, an onium salt, and a leuco dye, and forming a photosensitive element by extruding and calendering the mixture into a layer between a support and a coversheet. The photosensitive element was then backflash exposed to UV light, imagewise exposed to UV light, and developed to form a relief printing plate. After imagewise exposure, the photosensitive layer exhibited a

color difference between the exposed areas and the unexposed areas. The relief printing plate exhibited a color contrast between the raised imaged areas and the floor, which is particularly noted after treating, i.e., washout development. The relief printing plate is a flexographic relief printing plate. The process described in the present specification and shown in the Examples is the same as the method for producing a printing plate that is described in U.S. Patent 6,479,217.

4. Claim 1 of the '217 patent recites "a photopolymerizable recording layer having a front surface". The surface of the photopolymerizable layer opposite the support which is imagewise exposed corresponds to the front surface of the photopolymerizable layer. The term "front surface" corresponds to the side of the plate with the release layer as used in Examples 1 and 2 of the above-identified specification. From Examples 1 and 2, the element was exposed through the negative that was placed on a surface of the element opposite the support, i.e., the side with the release layer, which is the same as the "front surface" of the photopolymerizable layer. Those skilled in the art of photopolymer printing plates know that the side of the element opposite the support is the "front surface" of the photopolymerizable layer as recited in the '217 patent.

5. Claim 1 of the '217 patent recites "a photopolymerizable recording layer having ... and a back surface". The surface of the photopolymerizable layer given the backflash exposure corresponds to the back surface of the photopolymerizable layer. Those skilled in the art of photopolymer printing plates know that the support side of the element, or the side given the backflash exposure, is the "back surface" of the photopolymerizable layer.

6. Claim 1 of the '217 patent recites "a photopolymerizable monomer". The at least one monomer capable of addition polymerization are photopolymerizable monomers since upon exposure to actinic radiation the initiator generates free-radicals that initiate radical chain polymerization of unsaturated monomer or monomers.

7. Claim 1 of the '217 recites "forming a cured back surface on said recording layer". The polymerized material forming the floor is cured. The term "cured" used in the '217 patent means the same as the term "polymerized" which is used in the above-identified specification. From the discussion on page 19, lines 17-22 of the subject specification, blanket exposing the photopolymerizable layer to actinic radiation will create a layer of polymerized material. The term "cure," to one skilled in the art, means,

inter alia, to promote hardening, e.g., photohardening. The entire surface of the photopolymer printing plate is exposed to ultraviolet light for a predetermined period in order to provide the entire surface with a cured layer of material. The purpose of the exposure to ultraviolet light is to effect photopolymerization. Thus, one of ordinary skill in the art of photopolymer technology knows that the terms "cured" and "polymerize", as used in the present context, are interchangeable.

8. Claim 1 of the '217 patent recites "the exposed areas are cured by exposure to the actinic radiation". The term "cured" used in the '217 patent means the same as the term "polymerized" which is used in the above-identified specification. From the discussion on page 17, lines 24-25 of the subject specification, exposing the photopolymerizable layer to actinic radiation through the "clear" areas of a mask will polymerize or crosslink the underlying areas in the photopolymerizable layer. The term "cure," to one skilled in the art, means, inter alia, to promote hardening, e.g., photohardening. The purpose of the exposure to ultraviolet light is to effect photopolymerization. One skilled the photopolymer art would understand that exposure of a photopolymer to actinic radiation, in particular ultraviolet light, results in polymerizing or hardening of the photopolymer. Hardening of the photopolymerizable material upon exposure is curing. Thus, one of ordinary skill in the art of photopolymer technology knows that the terms "cured" and "polymerized", as used in the present context, are interchangeable.

9. Claim 24 of the '217 patent recites "an oxidizing agent". The onium salt comprises a strongly oxidizing cation paired with a nonnucleophilic anion. An oxidizing agent is a compound that gives up oxygen easily, removes hydrogen from another compound, or attracts negative electrons. The onium salt is an oxidizing agent because the onium salt attracts electrons capable of oxidizing the leuco dye or generates an acid that converts the leuco dye to its color form. The cation of the onium salt oxidizes (via electron transfer) the leuco dye which is transformed into its radical cation.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United

States code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

06/17/2003
Date

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Attachment 1
ADRIAN LUNGU

PATENT

"Photosensitive Intramolecular Electron Transfer Compounds"; Neckers, D.C.; Hassoon, S. A.; Sarker, A. M.; Lungu, A.; Mejiritski, A., issued as U.S. Patent 5,998,496 on December 7, 1999.

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"Tetraorganylborate Complexes as Convenient Precursors for Photogeneration of Tertiary Amines"; Sarker, A.M.; Lungu, A.; Mejiritski, A.; Kaneko, Y.; Neckers, D.C. *J. Chem. Soc., Perkin Trans. 2*, **1998**, *10*, 2315.